

AGS MAINTENANCE/MODIFICATIONS/REPAIRS

1997 SHUTDOWN SCHEDULE (NOVEMBER 1997 – MARCH 1998)

(Shutdown Jobs Status As Of April 1, 1998)

R. Zaharatos - April 2, 1998

SCHEDULE SUMMARY

Polarized Protons run ends - Sunday, November 16, 1997 at 1600 Hrs.

Shutdown Jobs Period - Monday, November 17, 1997, 0800 Hrs. - Monday, March 16, 1998, 0800 Hrs.

Equipment Checkout for HEP turn-on - March 16-30, 1998

AGS Ring heat run - November 17, 1030-1400 Hrs. (includes turn-on and warm-up)

AGS Ring equipment testing - November 18, 0800-1600 (A5 Kicker, Siemens, and Multipoles)

Note: Possible extension through November 20 or 21.

AGS Ring Restricted Access - November 20 (earliest), 0800 Hrs. through March 13, 1998

Booster Ring Restricted Access - November 17, 1300 Hrs. through March 13, 1998

SEB Restricted Access - November 18, 0800 Hrs. through March 13, 1998

START OF SHUTDOWN DETAILED SCHEDULE

Shutdown Jobs Period - Monday, November 17, 1997, 0800 Hrs. - Monday, March 16, 1998, 0800 Hrs.

MCR and OPS Group Manning

Nov. 16 MCR manning ends (Presently scheduled for 2000 Hrs. if beam off by 1600)

Nov. 16 OPS here until 0500 Mon., MCR Group until machine is secured (by 1900??)

Nov. 17 MCR manning for HP surveys and equip. testing as required.

OPS - Schnitzenbaumer/Ashby-0800-1700

Nov. 16

1600 Polarized Protons ends. Put all AGS, Booster, and SEB equipment to off.

Linac equipment - Notify B. Briscoe who will supervise turn-off

AGS and Booster Restricted Access LOTO (**Both machines and Linac shall remain in Controlled Access mode**)

2000 OR when machine has been secured, Switch Pump Room Alarms to Site Maintenance (inform Site Supervisor)

Nov. 17

0800-1000 HP survey of AGS Ring including additional detailed surveys of devices to be worked on (list given to HP and copy to MCR)
Continue Booster Shutdown LOTO
1030 Begin HP surveys of Booster, Linac, and SEB

Nov. 17

1030-1400 AGS Ring heat run
Begin SEB LOTO and complete HP surveys for SEB Restricted Access
900 Tower 5 shutdown - make certain all equipment cooled by this tower has been secured, then notify MS Group to begin draining of tower.
1200 Switch Booster and Linac to Restricted Access (when approved by R. Zaharatos).
1300-1630 AGS Ring and SEB Shutdown LOTO continues exclusive of equipment under test
1600-1700 LOTO equipment for night.

Nov. 18, 19,?

0800-1600 AGS Ring equipment testing (A5 Kicker, Siemens, and Multipoles)
Note: (may be extended through Nov. 20 or 21)
1600-1700 LOTO of equipment involved in testing program
Switch AGS Ring to Restricted Access (when approved by R. Zaharatos)

**SUPPORT GROUP LISTS FOR MAINTENANCE/MODIFICATIONS/REPAIRS FINAL
JOBS STATUS REPORT**

* - Additions or Changes
C - Complete
Can - Cancelled
IP - In-process or partial completion of long term job
RS - Reschedule

PRIMARY JOBS

AGS RING SYSTEMS

C 1. Siemens Motor Speed Control Installation
C 2. Complete AGS BPM System
C 3. SEB Separators Maintenance and Repair (6)
RS 4. Replace F5 Septum with Spare
IP 5. New H10 Hse Equipment Water Cooling System
RS 6. Refurbish Linac Tower and Tower Five
C 7. Rebuild 3 SEB Splitters
C 8. Install Eight Octopoles
RS 9. Rebuild F6 Main Magnet

- RS 10. Complete Construction and Install H20 Septum
- C/RS 11. Install L10 RF Cavity (Barrier Bucket) - C - All cabling installed and girder prepared for installation
- C/RS 12. Install J10 Beam Dump - C - Mounting stands & cabling installed
- C 13. Refurbish RF/MG Liquid Rheostal Covers
- C 14. Siemens Motor/Generator Major Maintenance
- C 15. Replace RF System Plate P.S. Diode Stacks Hardware
- C 16. RF (Ring) Install New Blowers in Feedback Amplifiers
- C 17. Addition of Controls to Splitter Vacuum System
- C 18. Siemens Video Monitor System
- C 19. Replace IPM Servo's
- C 20. Replace Transverse Damper Tubes
- RS 21. Install CF100 (New Box and Optics)
- RS 22. Install A20 Flying Wire Profile Mon.
- C 23. MCR Upgrade/Ceiling Replacement
- C/RS 24. Escape Alcoves - painting, structural repairs, and doors replacement
(All complete except for new roofing & surface material)
- IP* 25. Installation and Commissioning of New BPM Sys.

G-2

- IP 1. G-2 Kickers Construction & Installation

BOOSTER

- RS 1. Replace 15 damaged water manifold yokes
- C 2. RF Band III Controls (PLC) Upgrade
- RS 3. Replace RF PA Water Fittings
- RS 4. Install IPM Micro Channel P.S.
- C 5. Add shielding around Beam Dump (D6)
- C * 6. Change alignment of F5 half cell
- C * 7. Repair Injection Foil drive including sector vac. bakeout
- C * 8. Installation of current monitor resistor for A20 Inflector

SEB

- C 1. Rebuild All Target Stations (Instrumentation - Cables, Secs, Swics, Etc.)
- CAN 2. SWIC Computer Controls for "C" Line
- C 3. Install SEB Exp. Area NMC's
- C 4. C1/C3 Beam Line - New Proton SWIC
- C 5. Exp. Floor Instrumentation Maintenance and Repair

LINAC

- IP 1. Complete P.S. PLC Controls

RHIC/ "U" LINE

- RS 1. New Cooling System For Proton Radiography
IP 2. Install "X" Line Injection Kickers
RS 3. Install "U" Line Collimator (UC1)
RS 4. Install Foil Stripper
IP 5. Install Transfer Line Beam Pipes (12)
IP 6. Install "U" Line PASS System Video (5 gates)

EAG

- C 1. Reconfigure C1/C3 Beam Lines

AGS MAINTENANCE, REPAIR AND MODIFICATION PROGRAM

JOBS SCHEDULING REQUEST

GROUP: Access Controls: D. Meany (Ext. 5329, [0361], A. McGeary (Ext. 2053 [0554]

For Maintenance Period November 15, 1997 - March 15, 1998 Shutdown

<u>JOB#</u>	<u>ACCESS TO</u>	<u>EST. HRS.</u>	<u>JOB DESCRIPTION AND RESPONSIBLE PERSON</u>	<u>ADD'L. SUPPORT</u>	<u>HP SURVEY</u>
IP 1	U Line	18	Installation of 4 PLC's in 921		
IP 2	U Line	18	Updating gates		
IP 3	U Line	18	Resectioning of U Line areas		
C * 4	Booster		Annual Security Checks		
C * 5	AGS Ring		Annual Security Checks		
C * 6	SEB		Annual Security Checks		
C * 7	C5		Annual Security Checks		
C * 8	A3		Annual Security Checks		
C * 9	U Line		Run Cables From 921 to 1000P		

AGS MAINTENANCE, REPAIR AND MODIFICATION PROGRAM

JOBS SCHEDULING REQUEST

GROUP: Beam Components: D. Lehn (Ext. 4542, [4276], T. Russo (Ext. 7330 [4201]

For Maintenance Period November 15, 1997 - March 15, 1998 Shutdown

<u>JOB#</u>		<u>ACCESS TO</u>	<u>EST. HRS.</u>	<u>JOB DESCRIPTION AND RESPONSIBLE PERSON</u>	<u>ADD'L. SUPPORT</u>	<u>HP SURVEY</u>
C	1	SEB Caves C & D	600	SEB Separator maint. (vacuum pumps, servo and Ion gauge cables, poss. LESB 3 rebuild)	Survey, HP	
RS	2	AGS Ring	40	Replace F5 Septum w/spare	Survey, Vac, HP	
C	3	AGS Ring	100	Remove and reinstall AB1, DB2, BB3 Splitters	Survey, Vac, HP	
C	4	AGS Ring	80	Install 8 LF Octopoles	Survey, HP	
RS	5	AGS Ring	40	Replace H20 Septum W/new design	Survey, HP, Vac	
RS	6	AGS Ring	40	Install J10 Beam Dump (completed - installation of support stands and cabling)	Survey, PR., Vac.	
RS	7	AGS Ring	10	Remove old C100 flag box and reinstall new unit	Survey, HP EAG	
RS	8	AGS Ring	10	Install A20 flying wire profile mon.	Inst., HP, Vac.	
RS	9	Booster	24	Replace 15 damaged water manifold yokes	HP	
C	10	Booster	8	Install cable support brackets E-3	HP	
RS	11	RHIC	10	Install Foil Stripper	RHIC Vac.	
C	12	AGS	8	Replace H-10 Flag	Vac.	
C/IP*	13	Booster	8	Repair Stripper Foil drive (C) and upgrade electronic controls (IP)		
C *	14	Booster		C3 Inflector - add voltage divider resistor in ring with external read back		

AGS MAINTENANCE, REPAIR AND MODIFICATION PROGRAM

JOBS SCHEDULING REQUEST

GROUP: Controls: K. Kohler (Ext. 3917), W. Buxton (Ext. 4053)

For Maintenance Period November 15, 1997 - March 15, 1998 Shutdown

<u>JOB#</u>	<u>ACCESS</u> <u>TO</u>	<u>EST.</u> <u>HRS.</u>	<u>JOB DESCRIPTION AND</u> <u>RESPONSIBLE PERSON</u>	<u>ADD'L.</u> <u>SUPPORT</u>	<u>HP</u> <u>SURVEY</u>
IP 1	Bldg. A10, E10, H10, 929	4 months	AGS BPM system controls		
C 2	Hitl P.S. Bldgs.	2 weeks	Station replacement: Hitl 1, 2, 929, H10, A10, and F10, Move vacuum controllers from E18 to F10 bldg.		
C 3	Hitl P.S. Bldgs.	1 week	Modify Burr Brown PWB's		
IP 4	A10	1 week	Develop and Install Flying Wire controls		
IP 5	Linac Control Room	2 weeks	Build and install 8 transition modules in Linac time line vme chassis.		
IP 6	Bldg. 921	2 days	Convert Snake & J10 Dump to vme Wave Form Generators.		
C 7	A10, H10, E10	2 weeks	Install 12 additional WFG's, remove Bit 3 extenders and install FEC's in there places. Replace V109 PWB's with V108 PWB's.		
C 8	Siemens Control Room	1 week	Finish Siemens controls		
C 10	E19	1 day	Install vme PLC for vacuum Interface/Instrumentation		
RS 9	Bldg. 930A	2 weeks	Install vme chassis in Bldg. 930A for Booster IPM. Extend Network and Timing to 930A.		
RS 11	Various Bldgs.	6 weeks	AC reset chassis development and installation.		
RS 12	Hitl bldgs.	2 weeks	Modify Hitl Vacuum controllers.		
IP 13	U Line Trailer	1 week	Timing for Acme Power Supply		
RS 14	U Line Trailer	1 week	Controls for SWIC Proton Radiography		

C	15	Bldg. 911B	2 days	Controls for Flags Instrumentation
C	16	C Instrum. Tlr.	1 week	Install SWIC vme controls
C	17	N/A	7 days	Build and Test 5 each TTL to AGS converter chassis.
RS 18		N/A	10 weeks	Develop new Acme Power Supply datacon controller.
C	20	Booster	4 weeks	BPM Support

AGS MAINTENANCE, REPAIR AND MODIFICATION PROGRAM

JOBS SCHEDULING REQUEST

GROUP: Instrumentation: T. Curcio (Ext. 4659 [4270], J. Geller (Ext. 4859 [4258])

For Maintenance Period November 15, 1997 - March 15, 1998 Shutdown

<u>JOB#</u>		<u>ACCESS TO</u>	<u>EST. HRS.</u>	<u>JOB DESCRIPTION AND RESPONSIBLE PERSON</u>	<u>ADD'L. SUPPORT</u>	<u>HP SURVEY</u>
C	1	AGS Complex	640	Retrieve, calibrate, reinstall and source check all necessary chipmunks.	HP	
C	2	AGS Ring	120	C10 SEC - Reinstall device, pull all new cables, replace damaged gas lines and test.	HP, Beam Components	
RS	3	AGS Ring	400	A20 Flying Wire - Pull cables, setup racks and all necessary equipment for Flying Wire and Isolation Valves.		
C	4	AGS Ring	80	IPM - C5 & E15 - Pull new Ion Gauge Cables, pull and test Servo Valves, install in line valves, repair gas lines, test and calibrate.	HP, Beam Components Vac. Grp.	
IP/RS	5	U - Line	600	Pull cables, install and setup all necessary equipment for Proton Radiography, Neutron Spallation and APT experiments. (deferred until June 1998)		
IP	6	U - Line	540	Pull cables, install and setup all necessary equipment for the video portion of the PASS System Upgrade.		
C	7	Siemens	80	Installation and setup of 3 cameras and monitors for the Cycloconverter in Bldg. 928		
C	8	External Beamlines	160	Fabrication, test and installation of necessary NMC Paddles and Radiation Monitors.	HP	

C	9	AGS Complex	120	Calibration and setup of all current transformers	
C	10	AGS/Booster	80	Calibration and test of Gauss Clock Systems	
C	11	External Beamlines	360	Setup and checkout all necessary Beam Instrumentation on the Experimental Floor and check back to MCR.	OPS MCR
RS	12	D - Line	8	Replace D Target SWIC and all associated cables.	HP
C	13	A - Line	40	Build new and replace A Target SWIC and replace all associated cables.	HP
CAN	14	B - Line	40	Build new and replace B Target SWIC and replace all associated cables.	HP
IP (50% C)	15	C - Line	120	Build new and replace C Target SWIC and replace all associated cables. Build and install new Servo System for the Target SWIC. (proton run)	HP
C	16	AGS	40	Transverse Damper - Retube and test all amplifiers.	
C	17	AGS	120	Vacuum System - Repair all necessary IPPS (15)	
CAN	18	C - Line	40	Install new Proton SWIC - C1/C3 BEAMLINES Phase 2	
C	19	AGS Ring	600	Upgrade Splitter Vacuum System including all controls and cables.	HP, Vac. Group
IP (75% C)	20	C - Line	320	Pull cables and setup necessary equipment for the SWIC Digitization Project in C Instrumentation Trailer.	Controls
C	21	AGS Ring	160	Pull Cables, install and test new CF100 Frame Grabber System	
C	22	Switchyard	120	Pull Cables, install and test new DAGE rad hard cameras.	HP
RS	23	Booster	60	Setup, test and reconfigure racks for new IPM Bias Supplies and existing power supplies in Booster Ring.	HP
C	24	E821	120	Test, repair and setup Quench Detection System for upcoming Main Magnet shimming.	
RS	25	E821	400	Pull cables, setup and complete Beam Chamber Vacuum System including IPPS Upgrade.	Vac. Grp.
C	26	AGS	120	Vacuum System - repair and test of several control problems including CCG's, Aux Chassis problems and LVPS Problems.	
C	27	Booster	120	Vacuum System - repair and test of several control problems including equipment interlocks, Ion Gauge Collector problems and LVPS	

				monitoring upgrade.	
C	28	Switchyard	60	Investigate and repair AR/CO2 leaks in the Loss Monitor/SWIC gas system to alleviate increasing gas consumption.	HP
C	29	AGS Ring	80	Repair and test PMT assemblies for CST036	HP
C/RS (b)	30	External Beamlines	240	Repair of Instrumentation of the Experimental Floor including	
C				a) Replace A1W347 Plunging SWIC	
RS				b) Repair B1W640 Plunging SWIC-HV problem.	
C				c) Repair C1W555 Plunging SWIC-Air Leak	
C				d) Repair C1W555 Cabling Problem	
C				e) Repair C1W474 Cabling Problem	
C				f) Repair C1C1 Collimator - Pot Problem	
C				g) Reinstall C5W1800 SWIC	
C				h) Reinstall C5W1360 SWIC and associated electronics	
C	31	External Beamlines	160	Video Setup of all necessary cameras including	
				a) new SWITCHYARD camera mounts	
				b) new camera mount for A3 experimenter	
				c) new camera mount for CF011	
IP	32	ATR	120	Vacuum System - repairs and upgrades necessary for U-Line and future RHIC running.	Vac. Grp.
RS	33	AGS	40	Rebuild Averkey video system for MCR Beam info. displays.	
C	34	Tandem	40	Calibration of Chipmunks as required	
C	35	NSLS	80	Calibration of Chipmunks as required	
IP	36	RHIC	???	Repair of DC type Chipmunks - Needed if any ATR running past U-Line.	
IP/RS	37	RHIC	1000 +	Ongoing RHIC construction and preparation including:	
IP				a) Testing and calibration of all BLM's (pre/postconstruction)	
IP				b) Construction/testing/ATE design - BLM Analog Boards.	
				c) Co-Injection - Prototyping	
RS				d) BLM Cabling - RHIC Ring	
RS				e) VPM installation - Optics/Bunker	
RS				f) Installation and setup of XF1/XF2 flags	
RS					

AGS MAINTENANCE, REPAIR AND MODIFICATION PROGRAM

JOBS SCHEDULING REQUEST

GROUP: LINAC: B. Briscoe (Ext. 5007, 5010 [4224], J. Alessi (Ext. 7563

For Maintenance Period November 15, 1997 - March 15, 1998 Shutdown

NOTE: Most jobs IP and will continue following the Pol. Protons Run

<u>JOB#</u>	<u>ACCESS TO</u>	<u>EST. HRS.</u>	<u>JOB DESCRIPTION AND RESPONSIBLE PERSON</u>	<u>ADD'L. SUPPORT</u>	<u>HP SURVEY</u>
IP 1		460	Linac RF maintenance		
IP 2		512	Linac miss RF maintenance A-L		
IP 3		292	Linac miss RF maintenance M-X		
IP 4		640	Linac quad and mag maintenance		
C 5		40	Linac vacuum maintenance		
RS 6		100	Linac preinjector maintenance		
RS 7		16	Linac chopper maintenance		
RS 8		100	Linac control room maintenance		
C 9		40	Finish RF control system readbacks		
C 10		40	Change ion pumps on tank 7 and leak check		Yes
RS 11		80	Put tank ion pumps on control system		
RS 12		40	Install controls for resetting ion pumps		
C 13		40	Install new valve at first cryo in LEBT		
IP 14		40	Complete installation of new SS chopper		
CAN 15		40	Move LBM-1 DC PS to new rack		
CAN 16		40	Move POL proton vac controls to new panel		
C 17		40	Check 7835 fil PS filter caps		
IP 18	LINAC	20	Install new RF feed loops for test		Yes

C	19		80	Install new BM2 power supply		Yes
IP/RS	20	LINAC	40	Complete hold down plugs for BM2 shield		Yes
RS	21	LINAC	120	Complete tank alignment	Survey	Yes
RS	22		120	Add new half bucket to BLIP and rewire		
IP	23		2	Set MOD8 7835 input tuning limits		
RS	24	LINAC	80	Complete BLIP rabbit work		Yes
C	25		4	Assist PE in removal of CO ² from Pit2		
RS	26	LINAC	20	Add shielding after NZ307		Yes
RS	27	LINAC	80	Rebuild and test steerers for BLIP		Yes
IP	28		40	Check and recalibrate Linac LRM system		
RS	29	LINAC	80	Complete repair of 3 failed BPM modules		Yes
IP	30		16	Leak check all Linac LRM systems		
RS	31	LINAC	120	Complete building, test and install 5 BPMs		Yes
IP	32	LINAC	40	Repair BLIP first multi wire		Yes
IP/RS	33		40	Check and add source ckt and timing to UPS		
CAN	34		120	Remove buncher grids and test		
IP	35	LINAC	8	Repair cable of BLIP SEM		Yes
C	36	LINAC	40	Check tank 8 for sparking (added new hi-loop and window holder diel.)		Yes
IP	37		80	Remove all Jennings clean and lubricate		
C	38		80	Check and repair all driver short switches		
C	39		8	Rewire all driver short switches		
IP/RS	40		40	Modify 7835 input tuner with Fermi design		
IP	41		160	Develop 7835 filament and anode test rig		
RS	42		80	Rebuild and test steerers for BLIP		Yes
C	43		40	Remove all paint from all RF detectors		
IP	44		40	Test and complete dry air to feedloops		Yes
IP	45		4	Change HEBT and BLIP local controls		
IP	46		20	Check and reset all Linac local controls		
RS	47		16	Install local remote switches in ICR		
IP	48		80	Complete construction of SS modulators		
IP/RS	49		160	Design and build 6 inter tank BPMs		
IP/RS	50		120	Complete development of cal test set BPM	Gassner	
IP	51		160	Install and test Linac timing system		
C	52		160	Complete prototype PLC MOD10		

IP/RS 53	320	Install PLC into one MOD	
C 54	4	Change hoses in BM2 PS	
C 55	40	Check and replace bad fans in VME chassis	
IP/RS 56	40	Replace switches and dpots in tank water cont	
RS 57	80	Install Acme supply for HEBT 2 quad	
C 58	20	Check grounding in MOD 9 quad rack	
IP 59	40	Check AC phase of all 7835 tuners for MOD	
C 60	40	Check all cab braids and clean paint	
RS 61	120	Add chill water cooling to 7835 supplies	
IP 62	120	Add chill water to IGGYS and new float switch	
IP 63	20	Install new PS for fast chop	
C 64	40	Investigate PPM of BLIP and HEBT for diff eng	
RS 65	160	Design test construct new servos for RF	Hayes
RS 66	160	Design SS linear grid MOD for RFQ1	
RS 67	120	Design 5KW SS amp for drivers and bunchers	
RS 68	120	Design new SS ion source arc pulser	
RS 69	120	Design new SS quad pulsers for	
C * 70	80	Open tanks 6 & 9 to remove metal windows.	
IP * 71		Work on P.S. for SCR control of EBIS.	

AGS MAINTENANCE, REPAIR AND MODIFICATION PROGRAM

JOBS SCHEDULING REQUEST

GROUP: Mechanical Services: J. deBoer (Ext. 4668 [4250], E. Dale (Ext. 7943 [0124])

For Maintenance Period 1997 Summer Shutdown

<u>JOB#</u>		<u>ACCESS TO</u>	<u>EST. HRS.</u>	<u>JOB DESCRIPTION AND RESPONSIBLE PERSON</u>	<u>ADD'L. SUPPORT</u>	<u>HP SURVEY</u>
IP	1	H-10	40 mhr	Installation of a new primary cooling system and pump shed at H-10 House	P.E. and Contractors	
RS	2	930 & 919	40 mhr	Refurbishment of Linac and 919 (#5) towers. (send out Linac fan motor for overhaul).	P.E. and Contractors	
RS	3	911A AGS Ring	80 mhr	Installation of a new manifold, piping and controls for the new L-10 RF cavity.	RF Group and P.E. Plumbers	L-10
CAN	4	919	80 mhr	Installation of a new primary and secondary (cooling tower) cooling system for the new proton Radiography Line.	EAG Group and Contractors	
RS	5	928, 929	160 mhr	Installation of a new cooling and controls system for the RF power and choke system. (RF power and choke cooling systems will be combined and have one cooling system for both).	P.E. and Contractors	
RS	6	928	60 mhr	Replacement of 6 tower valves for the RFMG Tower Pumps.	P.E. Plumbers	
C	7	928, 929	60 mhr	Replacement of pump valves and system valves on the SEM System. System must be drained into tanker.	P.E. Plumbers	
C	8	TE Bldg.	40 mhr	Install freeze protection system on RFPA Cooling System.	P.E. Plumbers	
IP	9	919	40 mhr	Relocate G-2 dionizer from pump room to V Target area.	EAG	
C	10	913	40 mhr	Install additional flow switches on cooling lines for the BTA Magnets.		
RS	11	Recharge Basin	20 mhr	Install new AGS recharge basin valves.	P.E. Plumbers	
C	12	928	80 mhr	Complete refurbishment of siemens liquid rheostat. Valves, flow switches, end bells, Gages and check valves.	P.E. Machine Shop	

CAN	13	915, 916, 917	?	Refurbish AGS well pump systems.	P.E. and Contractors
RS	14	911A	?	Overhaul main magnet pump #3. Replacement of bearings and seals. NOTE: There may be a strong possibility, that all three main magnet pump impeller may have to be cut.	P.E. and Machine Shop
IP	15	1005		Remove and install new in ground valve drains for tower #7 (1005).	P.E. Plumbers
C	16	911A		Disassemble, clean and reassemble main magnet heat exchanger	
C	17	911A		Replace special ejection pump #1 seals and bearings. Cut impellers on both pumps.	P.E. Machine Shop
RS	18	912-TWR#2		Incorporate new basin liner for tower #2	Contractor
RS	19	911A		Drain and clean well water tank.	None

Maintenance tasks as part of our daily maintenance efforts. The watch will be performing a daily surveillance of and stop/start of all operating equipment. (2 to 4 man hours daily).

RS	1	911A		Mount and install new main magnet gauge board.	
RS	2	911A		Remove PSI switches from all three main magnet pump discharge.	
RS	3	911A		Remove and repair tower #1 pressure control valve.	
C	4	911A		Check and test system alarms	H. Ashby
C	5	911A		Calibration of all system controls and gauges.	
C	6	AGS Ring		Replace all air filters on all air tanks	None
C	7	AGS Ring		Replace all bag filters	None
C	8	AGS Ring		Inspect, repair and replace all discolored hoses. Replace leaking fittings.	None
C	9	AGS Ring		Back flush any magnets found during heat run	None
C	10	AGS Ring		Check and test all ring sump alarms.	H. Ashby
RS	11	AGS Ring		Install blank flanges on main magnet spare valves.	None
RS	12	AGS Ring		Disconnect fast pulse quad from domestic at H wart.	None

Multipole System & Power Room Pumps

C	1	Bldg. 911	40 mhr	Mini maintenance on all system pumps (4).	None
C	2	Bldg. 911	16 mhr	Calibration of all system controls and gauges.	None
C	3	Bldg. 911	3 mhr	Check and test system alarms.	H. Ashby

TOWER #1

C	1	Tower #1	6 mhr	Drain and clean tower	None
RS	2	Tower #1	8 mhr	Drain and fill oil in fan gear box, grease fan motor.	None
RS	3	Bldg. 911	40 mhr	Maintenance on all system pumps (4). (New motors for pumps 3 and 4)	None
C	4	Bldg. 911	3 mhr	Calibration of all system controls and gauges.	None
C	5	Bldg. 911	2 mhr	Check and test system alarms.	H. Ashby

RFPA SYSTEM

C	1	T.E. Bldg.	16 mhr	Drain and clean evaporative cooler and clean nozzles.	
C	2	T.E. Bldg.	6 mhr	Maintenance on evaporative cooler fan motor and spray pump (flush grease, alignment on fan belt and inspection).	None
RS	3	T.E. Bldg.	6 mhr	Improve make-up dionizer water connections.	None
C	4	T. E. Bldg.	16 mhr	Mini maintenance on all system pumps (2).	None
C	5	T.E. Bldg.	8 mhr	Calibration of all system controls and gauges	None
C	6	T.E. Bldg.	2 mhr	Check and test system alarms.	H. Ashby

Fast Pulse Quad System And 18 Houses

RS	1	T.E. Bldg.	16 mhr	Drain and clean system heat exchanger.	Job Shoppers
C	2	T.E. Bldg.	6 mhr	Repair pipe leaks in G-18 House	None
RS	3	T.E. Bldg.	24 mhr	Mini maintenance of all system pumps (2).	None
C	4	T.E. Bldg.	2 mhr	Calibration of system controls and gauges.	None
C	5	T.E. Bldg	1 mhr	Test and check system alarms.	H. Ashby
RS	6	E-10 House	24 mhr	Change piping from main magnet system to fast pulse quad and heat trace.	
C *	7	L-18 House	8 mhr	Disconnect Modulator Water	
C *	8	J-18 House	8 mhr	Disconnect Modulator Water	

C-Line Pumping System

C	1	Bldg. 912	24 mhr	Mini maintenance of all system pumps (2).	None
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C	2	Bldg. 912	8 mhr	Calibration of system controls and gauges.	None
C	3	Bldg. 912	2 mhr	Check and test system alarms.	H. Ashby

TOWER #2

C	1	Bldg. Twr#2	6 mhr	Drain and clean tower.	None
RS	2	Bldg. Twr#2	12 mhr	Drain and fill oil in gear box. Grease fan motor and inspect tower.	None
C	3	Bldg. Twr#2	16 mhr	Mini maintenance on all system pumps (3).	None
C	4	Bldg. Twr#2	5 mhr	Calibrate all system controls and gauges.	None
C	5	Bldg. Twr#2	3 mhr	Check and test system alarms.	H. Ashby

TOWER #3

C	1	Bldg. Twr#3	4 mhr	Drain, clean tower and strainers.	None
C	2	Bldg. Twr#3	3 mhr	Grease fan motor and inspect tower.	None
C	3	Bldg. Twr#3	8 mhr	Mini maintenance on all system pumps (2).	None
C	4	Bldg. Twr#3	3 mhr	Calibrate all system controls and gauges.	None
C	5	Bldg. Twr#3	3 mhr	Check and test system alarms.	H. Ashby

TOWER #4

C	* 1	Bldg. 912A	6 mhr	Service Pump #12 start switch	Electricians
C	2	Bldg. 912A	4 mhr	Drain, clean tower and strainers.	None
RS	3	Bldg. 912A	3 mhr	Drain and fill oil in gear box. Grease fan motor and inspect tower.	None
C	4	Bldg. 912A	12 mhr	Mini maintenance on all system pumps (4).	None
C	5	Bldg. 912A	3 mhr	Calibrate all system controls and gauges.	None
C	6	Bldg. 912A	3 mhr	Check and test system alarms	H. Ashby

TOWER #5

C	1	Bldg. 919	6 mhr	Drain, clean tower and strainers.	None
C	2	Bldg. 919	4 mhr	Drain and fill oil in gear box. Grease fan motor and inspect tower.	None
C	3	Bldg. 919	16 mhr	Mini maintenance on all system pumps (3) (repack all pumps).	None
C	4	Bldg. 919	5 mhr	Calibrate all system controls and gauges.	None
C	5	Bldg. 919	3 mhr	Check and test system alarms.	None

TOWER #6

C	1	Bldg. 1000P	3 mhr	Drain and clean tower	None
C	2	Bldg. 1000P	4 mhr	Grease fan motor and inspect tower.	None
IP	3	Bldg. 1000P	32 mhr	Mini maintenance on all system pumps (4) (repack and replace leaking seals).	None
IP	4	Bldg. 1000P	3 mhr	Calibrate all system controls and gauges.	None
IP	5	Bldg. 1000P	3 mhr	Check and test system alarms.	H. Ashby

TOWER #7

IP	1	Bldg. 1005	6 mhr	Drain and clean tower	None
IP	2	Bldg. 1005	24 mhr	Drain and fill oil in gear box. Inspect tower.	None
IP	3	Bldg. 1005	32 mhr	Mini maintenance on all system pumps (5).	None
IP	4	Bldg. 1005	3 mhr	Calibrate all system controls and gauges.	None
IP	5	Bldg. 1005	3 mhr	Check and test system alarms.	H. Ashby

G-2 PUMPING SYSTEM

C	1	Bldg. 919	3 mhr	Drain and clean tower	None
C	2	Bldg. 919	4 mhr	Grease fan motor and inspect tower.	None
C	3	Bldg. 919	32 mhr	Mini maintenance on all system pumps (4).	None
C	4	Bldg. 919	3 mhr	Calibrate all system controls and gauges.	None
C	5	Bldg. 919	3 mhr	Check and test system alarms.	H. Ashby
C	6	Bldg. 919	8 mhr	Install new temp controller on G-2 pumping rig.	None
C *	7	Bldg. 919		Incorporate domestic water back-up cooling.	

BOOSTER RING & WATER SYSTEMS

C	1	Bldg. 914	16 mhr	Inspect ring, repair, replace defective hoses and fittings.	None
RS	2	Bldg. 914	3 mhr	Replace PVC piping on dionizer.	None
C	3	Bldg. 914	12 mhr	Inspect, repair, test and purge RLRM system.	None
C	4	Bldg. 914	6 mhr	Clean main magnet flow transmitter and anubar.	None
C	5	Bldg. 914	32 mhr	Mini maintenance on all system pumps (6).	None
C	6	Bldg. 914	18 mhr	Calibrate all system controls and gauges.	None
C	7	Bldg. 914	8 mhr	Check and test system alarms.	H. Ashby

LINAC

C	1	Bldg. 930	24 mhr	Tower pump #2, replace pump bearings	None
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possibly repack.

RS	2	Bldg. 930	40 mhr	Drain and clean RF and transport heat exchangers.	None
C	3	Bldg. 930	4 mhr	Replace defective make-up valve on cavity station #3.	None
C	4	Bldg. 930	80 mhr	Maintenance on all cavity systems. Controls, pumps etc. modify pump piping.	None
C	5	Bldg. 930	6 mhr	Drain and clean tower	None
RS	6	Bldg. 930	24 mhr	Drain and fill oil in gear box. Inspect tower.	None
C	7	Bldg. 930	40 mhr	Mini maintenance on all system pumps (8) (repack and replace leaking seals).	None
C	8	Bldg. 930	40 mhr	Calibrate all system controls and gauges.	None
C	9	Bldg. 930	3 mhr	Check and test system alarms.	H. Ashby

BLIP PUMP ROOM

RS	1	Bldg. 946	24 mhr	Drain and clean heat exchanger. (drained system water will be stored in drums and put back in, on completion of effort).	None
C	2	Bldg. 946	6 mhr	Mini maintenance on all system pumps (2).	None
C	3	Bldg. 946	2 mhr	Calibration of all system controls and gauges.	None
C	4	Bldg. 946	2 mhr	Check and test system alarms.	H. Ashby

WELLS

CAN	1	Bldg. 915, 916, 917	40 mhr	Maintenance on all pumps and check valves.	None
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RFMG

C	1	Bldg. 929	16 mhr	Repack tower pumps	None
C	2	Bldg. 929		Replace SEM pump #2 with new	None
C	3	Bldg. 929	12 mhr	Drain and clean RFMG, tower and strainers. Drain and clean SEM Evaps. Service secondary breakers.	Electricians
C	4	Bldg. 929	8 mhr	Installation of Lo Lo interlock on RF cavity system.	P.E. Electricians
C	5	Bldg. 928 and 929	40 mhr	Mini maintenance on all system pumps (16).	None
C	6	Bldg. 928 and 929	32 mhr	Calibration of all system controls and gauges.	None
C	7	Bldg. 928 and 929	6 mhr	Check and test system alarms.	H. Ashby
C	8	Bldg. 928	80 mhr	Drain and clean heat exchangers. Rectifier,	None

and 929

RF Power, chilled water, choke, sem, oiler and liquid reheostats.

F10 SYSTEM

C	1	F10 House	6 mhr	Drain and Clean Tower.	None
C	2	F10 House	12 mhr	Mini maintenance on all system pumps (4).	None
C	3	F10 House	6 mhr	Calibration of all system controls and gauges.	None
C	4	F10 House	3 mhr	Check and test system alarms.	H. Ashby
C	5	F10 House	4 mhr	Replace defective basin heater in tower.	Electricians

AGS COMPLEX

C	1	AGS	40 mhr	Replace bag filters in all filter cartridges. AGS Ring (3), Linac RF (1), RFPA (2), BSTR MM and Chiller (2), F10 (1), FPQ (1), TWR #6 (2), BLIP (1), C-Line (1), G-2 (1), Multipole (1) and 911 Chiller (1).	None
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902 COSMOTRON

C	1	Pump Room and Tower	8 mhr	Drain and clean tower and strainers.	None
C	2	Pump Room Tower & 944	6 mhr	Calibration of all system controls and gauges	None
C	3	Pump Room and 944	2 mhr	Check and test system alarms	None
IP	4	Pump Room and 944	40 mhr	Service all pumps	None

925 PUMPING RIG

RS	1	Bldg. 925	8 mhr	Maintenance on system pump, heat exchanger and controls.	None
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AGS MAINTENANCE, REPAIR AND MODIFICATION PROGRAM

JOBS SCHEDULING REQUEST

GROUP: Operations Support: R. Zaharatos (Ext. 7205 [4281], A. McNerney (Ext. 7693 [4222])

For Maintenance Period November 15, 1997 - March 15, 1998 Shutdown

<u>JOB#</u>		<u>ACCESS TO</u>	<u>EST. HRS.</u>	<u>JOB DESCRIPTION AND RESPONSIBLE PERSON</u>	<u>ADD'L. SUPPORT</u>	<u>HP SURVEY</u>
C	1	AGS	4 weeks	Test and inspect 48 DCCT's and 48 RF pick-ups.		
IP	2		2 weeks	Implement and test new software/hardware for DCCT's monitor.		
CAN	3	AGS	4 weeks	Rebuild F5 Main Magnet	PS, MS, Vac.	
C(60%)	4	911	10 weeks	Signal distribution system maintenance		
C	5		56 weeks	Assist RF Group with upgrades and new installations (3 persons)		
C	6	AGS	1 man wk	Install new low field _____ at D20		
RS	7		3 man wk	Construct additional channels for beam inhibit systems		
RS	8	AGS	2 days	Install beam inhibit and monitor for D20 Loss for next proton run.		
C	9		16 weeks	Assist Instrumentation Group with construction and installation of new equipment.		
C	10		4 weeks	Annual maintenance of Pump Room Digital Communicator System and testing of all alarms.		

AGS MAINTENANCE, REPAIR AND MODIFICATION PROGRAM

JOBS SCHEDULING REQUEST

GROUP: Power Distribution: D. Bastedo (Ext. 2555 [0274], A. Soukas (Ext. 4735 [0310])

For Maintenance Period November 15, 1997 - March 15, 1998 Shutdown

<u>JOB#</u>	<u>ACCESS TO</u>	<u>EST. HRS.</u>	<u>JOB DESCRIPTION AND RESPONSIBLE PERSON</u>	<u>ADD'L. SUPPORT</u>	<u>HP SURVEY</u>
C 1	Outside		H1 Substation FLP Project	Rigging, Line Crew, Fire alarm	
C 2	Outside		G-2 "Plan B" compressor power	Rigging	
C 3			Misc. cable installation support - MCR upgrade, A10 & E18 house, inst. racks).		

AGS MAINTENANCE, REPAIR AND MODIFICATION PROGRAM

JOBS SCHEDULING REQUEST

GROUP: Power Supply: M. Bannon (Ext. 7704 [4224], I. Marneris (Ext. 7027 [4255])

For Maintenance Period November 15, 1997 - March 15, 1998 Shutdown

<u>JOB#</u>	<u>ACCESS TO</u>	<u>EST. HRS.</u>	<u>JOB DESCRIPTION AND RESPONSIBLE PERSON</u>	<u>ADD'L. SUPPORT</u>	<u>HP SURVEY</u>
<u>BOOSTER</u>					
C 1		16	Check out spare 13.8 KV circuit breaker BAD BREAKER FAILED HIPOT NEEDS NEW POLES	Line Crew	
RS 2		120	Build 2 or 3 sextupole spare chassis, then test.		
CAN 3		24	T60 replacement computer need spark K.T. cards		
IP 4	On going	8	Pump out sump in transformer yard.	Line Crew	
C 5		16	Run a 4 cond cable for dump bump security		

C	6		Install and wire flow switches on all BTA Magnets.
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WESTINGHOUSE

CAN	1	16	Rebuild lift pumps (4 locations)	
RS	2	40	Oil pit secondary containment	Plant Eng.
RS	3	1 man year	Build new control room and layout all new controls	Plant Eng.
C	4	80	Remove old control room walls, ceilings and unused racks.	
IP	5	40	Make new filter intake room for air to MG Room.	
C	6	16	Install new belts and align shaft pump	
IP	7	2	Order new moog valve filter	
C	8	72	Get electrolyte pump for lig. rheo. working	
C	9	8	Coupling cover remove for tool measurement and operation.	
RS	10	16	Make heat exchanger for hydraulics a close system	
C	11	16	Test Liq. rheostat hydraulics	

SIEMENS

C	1	80	Prepare camera installation in MG Room and wire and make operational	
CAN	2	120	Build new motor speed control chassis	
C	3	8	Repair damaged liquid rheostat heat exchanger end bell,	Welder & Pump Room
C	4	32	Install new LEM in the brake circuit in Rk L16 and wire.	
C	5	16	Pull in cable and wire for new Liq. Rheostat position	
C	6	8	Install new MW Meter in LE1 and wire.	
C	7	32	Install new Shaft Encoder	
C	8	8	Install fan in the IRD Rack and wire	
C	9	8	Install Ramp Module in MD#2	
C	10	80	Move work areas out of trailers and into bldg. 929	Rigging
IP	11	80	Arrange Bldg. 929 for permanent occupancy	
RS	12	40	R & D work on new accelerometers	

C	13	16	Procedure for the new 95S switches
C	14	8	Iout Signal to MCR
C	15	8	Check out motor air intake and exhaust thermocouples (in is hotter than out)
C	16	8	Install new fan in MG room roof north end
C	17	480	Siemens Maintenance

CYCLOCONVERTER

C	1	120	Start testing wiring and operation of new cycloconverter
C	2	80	Install 535 MCM cable from cycloconverter to L25 rack and cut door and make cable entrance.
C	3	1440	Cycloconverter commissioning

AGS – UPS

UPS MAINTENANCE – CHANGE FILTERS, CLEAN AND VACUUM UNITS, TEST BATTERIES, INSTALL INPUT FLOATING CKTS. NOTE RECORD WHICH UPS ALREADY HAVE THE FLOATING CKTS INSTALLED.

C	1	8 hrs.	911 MCR
C	2	8 hrs.	EAO-A (8 new batteries installed)
C	3	8 hrs.	EAO-B (3 new batteries installed)
C	4	8 hrs.	SMS
C	5	8 hrs.	RF-1
C	6	8 hrs.	RF-2
C	7	8 hrs.	H10
C	8	8 hrs.	CYBEREX
C	9	8 hrs.	B914
C	10	8 hrs.	B914 SECY
C	11	8 hrs.	B919
C	12	8 hrs.	B911B
C	13	8 hrs.	E18
C	14	8 hrs.	A10
C	15	8 hrs.	B930
C	16	8 hrs.	L930A

AGS

C	1	40 hrs.	Remove unused circuits in the PEI Power Supplies in the F10 House and modify within compensation.
IP	2	16 hrs.	F10 and F5 resistance chassis trend reporting
C	3	8 hrs.	F5 Hipot DC cables (cables okay - F5 Septum internal short has cleared)
C	4	40 hrs.	Horz. quad PS balance mosfets
RS	5	320 hrs.	Resurrect spare PEI Power Supply <u>Prepare it to be moved to bldg. 922.</u>
IP	6	480 hrs.	Test out firing buckets 12 each 144 ramp modules; 24 digital delays; 15 filter brds. (for RHIC, J10 Bump, Westinghouse & Siemens exciters)
RS	7	2 man wk	Rebuild main magnet at F6.
C/RS	8	1 man wk	Install new high field bump at J10 for J10 Beam dump. P.S. to be installed in J18 house. C - Cables Installed.

AGS MAINTENANCE, REPAIR AND MODIFICATION PROGRAM

JOBS SCHEDULING REQUEST

GROUP: Pulsed Power: R. Zapasek (Ext. 2189 [4263], R. Sanders (Ext. 2591 [4228])

For Maintenance Period November 15, 1997 - March 15, 1998 Shutdown

<u>JOB#</u>	<u>ACCESS TO</u>	<u>EST. HRS.</u>	<u>JOB DESCRIPTION AND RESPONSIBLE PERSON</u>	<u>ADD'L. SUPPORT</u>	<u>HP SURVEY</u>
RS	1	2 weeks	G10 Kicker, install HV junction box (ZHANG)		
RS	2	1 week	Booster PBLW, Upgrade front panels (LOCKEY)		
C/RS	3	1 day	C - (L20 SEPTUM, cable support in ring), 24VPS problem, (LOCKEY) - RS		
IP	4	CONT	H10 Septum, improvements (LOCKEY)		

IP	5	1 week	FEB Trim Bumps, test new regulator, (DUNBAR)
IP	6	6 months	G-2 Kicker, build, test and install system (MI)
IP	7		RHIC Dump Kickers, development, construction and installation (DUNBAR)
IP	8	3 months	RHIC Injection Kickers, complete X Line installation (ZHANG)
C	9	2 days	A5 Kicker, repair interlocks, (ZHANG)
IP	10	1 week	Booster dump kicker, remove system, (ZAPASEK)

AGS MAINTENANCE, REPAIR AND MODIFICATION PROGRAM

JOBS SCHEDULING REQUEST

GROUP: RF – N. Laloudakis (Ext. 7177, 7417 [4261], A. Zaltsman (Ext. 2967 [4259])

For Maintenance Period November 15, 1997 - March 15, 1998 Shutdown

<u>JOB#</u>	<u>ACCESS TO</u>	<u>EST. HRS.</u>	<u>JOB DESCRIPTION AND RESPONSIBLE PERSON</u>	<u>ADD'L. SUPPORT</u>	<u>HP SURVEY</u>	
<u>AGS</u>						
C/RS	1	AGS Ring	?	L10 Barrier Bucket Cavity (Installation) (All cabling installed - not terminated, old cabling to be removed).	Pump Rm, Vac. Power Rm.	Yes
RS	2	Bldg. 929	?	Installation of rest of Barrier Bucket (PLC, Power Supplies, Wiring, etc.)	No	No
C	3	AGS Ring		Fix vacuum leak in D20-E1	Vac. Power Rm	Yes
C	4	AGS Ring	40 hrs.	Replace the feedback amp fans and the air duct for big tube. (10 P.A.'s)	No	No
C	5	AGS Ring	4 hrs.	In line fuses for filament lines	HP	Yes
RS	6	AGS Ring	20 hrs.	Tighten all din rail and terminal screws in the junction boxes.	HP	Yes
C	7	Bldg. 929	320 hrs.	Replace all the BOLTS AND NUTS in diode stocks	Riggers	No
RS	8	Bldg. 929	40	Recalibrate all ALE power supplies	No	No

			hrs.			
C	9	Bldg. 929		Breaker Maintenance	Line Crew	No
RS	10	Bldg. 929	120 hrs.	Modify Phase Detectors (will be done as permitted during run)	No	No
C	11	AGS Ring	60 hrs.	Lift all tubes and inspect tube sockets in all P.A.'s	Pump Rm	Yes
C	12	AGS Ring	60 hrs.	Gap Short Relays - Inspect and test	HP	Yes
C	13	AGS Ring	40 hrs.	Inspection of Power amplifiers and cavities.	HP	Yes
C	14	Bldg. 929	8 hrs.	Replace station JK Tuning power supply air flow switch	No	No
C	15	Bldg. 929		Modify wiring for all tuning P.S. air flow switches.		

BOOSTER

RS	1	Booster Tunnel	8 hrs.	Replace tube water fittings for band III	Pump Room	Yes
C	2	Bldg. 914	170 hrs.	Change over to PLC controls Band II	No	No
C	3	Bldg. 914	120 hrs.	ENI water cooling modification	Pump Room	No
RS	4	Bldg. 914		Phase detectors Modify (will be done as permitted during run).	No	No
C	5	Bldg. 914	8 hrs.	Fix and or replace grid divider for A6 power amplifier.	No	No
C	6	Booster Tunnel	32 hrs.	Inspection of Power amplifier and cavities.	HP	Yes
C/RS *7		Tunnel		Modify Band III E6 Sys. to lower injec. frequency to 800 KHZ. (new capacitors to be installed).		

AGS PUE

C	1	Bldg. 929		Pull fiber optic cables from H10 (3) and E10 (1)	Contract Electrician	No
C	2	E10, A10, H10	80 hrs.	Terminate all Helix ends (SMA)	No	No
C	3	Bldg. 929, A10, E10, H10	8 hrs.	Cut holes in all the cabinets	Plasma Cutter (PE)	No
C	4	Bldg. 925	24 hrs.	Make choke assemblies	No	No
C	5	E10, A10,	200 hrs.	Phase match all helix cables using jumpers	No	No

		H10		cables.		
C	6	AGS Ring	36 hrs.	Install 72 transformer boxes for BPM's.	HP	Yes
IP	7	Bldg. 925	120 hrs.	Test all electronics and install them.	No	No
IP	8			Commission new PUE system	No	No
IP	9	Bldg. 925	40 hrs.	F to V for MCR readback	No	No
IP	10	Bldg. 925	40 hrs.	Local Osc. (LO) distribution 72 channels 3 boxes.	No	No

AGS VHF

RS	1	AGS Ring	30 hrs.	Clean up behind the VHF cavity at G20	HP	Yes
RS	2	Bldg. 929, F18		Start up of the system	No	No

AGS MAINTENANCE, REPAIR AND MODIFICATION PROGRAM

JOBS SCHEDULING REQUEST

GROUP: Vaccum – S. Gill (Ext. 4627 [4164], M. Mapes (Ext. 2841 [4277])

For Maintenance Period November 15, 1997 - March 15, 1998 Shutdown

<u>JOB#</u>	<u>ACCESS TO</u>	<u>EST. HRS.</u>	<u>JOB DESCRIPTION AND RESPONSIBLE PERSON</u>	<u>ADD'L. SUPPORT</u>	<u>HP SURVEY</u>	
C	1	AGS-Splitters	Many	Vent, remove all 3 tanks (to be refurbished), replace (6) ion pumps, put system on Apollo; gauging/valve status/pumps/turbo Pumpdown leak check, restore vacuum integrity.	Riggers, HP, survey, beam components, instrumentation	Yes
C	2	AGS	2 days	Vent DE, remove E-1 main magnet from girder and replace d/s seal of D-20 RF cavity. Pumpdown, leak check, restore vacuum integrity.	Riggers, HP, power room, survey, water group, beam components	Yes
RS	3	AGS	1 week	Vent F, remove F-5 SEPTUM, remove F-5 main mag., remove chamber and ion pump from main mag., install new SEPTUM, install refurbished F-	Riggers, HP, power room, survey, water group, beam	Yes

				5 main mag., chamber-ion pump, new ion pumps at F-4 and F-7. Pumpdown, leak check, restore vacuum integrity.	components	
RS	4	AGS	1 week	Vent L, remove straight section at L-10, install new L-10 RF Cavity. Pumpdown, leak check, restore vacuum integrity.	Riggers, HP, power room, survey, water group, RF group	Yes
RS	5	AGS	3 days	Vent J, remove straight section at J-10, install new J-10 DUMP. Pumpdown, leak check, restore vacuum integrity.	Riggers, HP, power room, survey, water group, beam components	Yes
RS	6	AGS	4 days	Vent HI, remove H-20 box, install new H-20 SEPTUM. Pumpdown, leak check, restore vacuum integrity.	Riggers, HP, power room, survey, water group, beam components	Yes
C	7	AGS	72	Perform maint. on all turbo's: change oil/bearings/clean gages/test	HP	Yes
RS	8	AGS	3 days	Vent AB, remove straight section at A-20, install new FLYING WIRE. Pumpdown leak check, restore vacuum integrity.	Beam comp., HP, Survey	Yes
C	9	AGS	1 week	Vent EF, replace E-15 IPM servo, install 2 new ion gauges on IPM, replace E-17 tc gauge, replace E-16, E-17, E-18 ion pumps. Pumpdown, leak check, restore vacuum integrity.	HP, Instrum.	Yes
C	10	AGS	2 days	Vent C, replace C-5 IPM servo, install 2 new ion gauges on IPM. Pumpdown, leak check, restore vacuum integrity.	HP, Instrum.	Yes
C	11	AGS	24	Check all AGS gauges w/local readout and compare w/computer and house readbacks.	HP	Yes
C	12	Booster		Repair of injection foil stripper in "C". Replace all ion gauges and bake-out sector. Check HITL valve 141.		
C	13	RHIC/U-Line	?	Install "X" line Injection Kickers (Zapasek)		
RS	14	RHIC/U-Line	?	Install "U" line Collimator (D. Lehn)		
RS	15	RHIC/U-Line	?	Install Foil Stripper (D. Lehn)		
IP	16	RHIC/U-Line	?	Install 12 Transfer Line beam pipes (D. Lehn)		
IP	17	G-2	From now to	Clean, bake, reassemble, leak check, install and chambers, pump down, leak check ring, repair all		

March valves.

C	18	LINAC	32	Perform maintenance on all Blower stations		
C	19	REF	8	Leak check and make repairs	HP	Yes
C *	20	RHIC/Y-Line		Restore vacuum lost as a result of 1000P power outage.		
C *	21	Booster		Reposition F5 1/2 CELL		
C *	22	AGS		Change H10 flag. Repaired leak at H9 Marmon Flange.		